



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,435	08/15/2006	Hiromu Habashita	2006_0925A	1960
513 7590 04/10/2008 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER CHANDRAKUMAR, NIZAL S	
			ART UNIT 1625	PAPER NUMBER
			MAIL DATE 04/10/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,435	<b>Applicant(s)</b> HABASHITA ET AL.	
	<b>Examiner</b> NIZAL S. CHANDRAKUMAR	<b>Art Unit</b> 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03/20/2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 10-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/22/2007, 06/22/2006</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

#### DETAILED ACTION

This application 08/15/2006 is a 371 of PCT/JP04/19400 12/24/2004.JAPAN 2003-429948 12/25/2003.

#### *Election/Restrictions*

Applicant's election of Group I Claims 1-9 drawn to azetidine compounds in the reply filed on 028/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 10-19 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 028/2008.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and dependent claims rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is drawn to compounds wherein urea oxygen and thiourea sulfur may have substituents. While amidine or guanidine could have substituents on the nitrogen of the C=N moiety, it is unclear how the indicated O and S could have substituents on them. Specification does not contain any example of such a possibility.

Likewise the claim is drawn to substituents on hydrogen.

Claim 1 is also drawn to many vaguely defined variables such as heterocycles which are further substituted with undefined substituents.

It is unclear while applicant has used R and X groups to indicate substituents, ring A is defined as having 'further substituents' without defining what the substituents are. As presented, the formula I includes beta-lactams. However, commensurate with the metes and bounds of the invention and the overabundance of citations relating to 2-oxo-azetidines, the prosecution of the instant application does not recognize beta-lactams as including ring A of formula I.

Claims 1 and dependent claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, Applicants have the limitation solvates and prodrugs. What are the structures of these compounds? For example Applicants "prodrugs" are molecules whose structure lie outside the subject matter of formula (I), but upon metabolism in the body are converted to active compounds falling within the structural scope of formula 1. The claim describes the function intended but provides no specific structural guidance to what constitutes a "prodrug". Structural formulas, names, or both can accurately describe organic compounds, which are the subject matter of claim 1. Attempting to define means by function is not proper when the means can be clearly expressed in terms that are more precise. Likewise, while amines and nitrogen-heterocycle could form N-oxides, the formation of N-oxide is not automatic with all nitrogen functionalities. Specification does not provide an example of an N-oxide pertaining to formula I and as such it is unclear what N-oxides the applicant is seeking protection for.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and dependent claims are rejected under 35 U.S.C. 112, first paragraph, because the

Art Unit: 1625

specification, while being enabling for making few of the compounds of formula I, does not reasonably provide enablement for millions of the possibilities suggested by the formula I. The specification is enabling for making compounds of the formula I wherein the azetidine ring is substituted only with the amino group at the 4-position. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The determination that "undue experimentation" would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the relevant factual considerations.

Enablement is considered in view of the Wands factors (MPEP 2164.01 (a)). : 1) The breadth of the claims, 2) The nature of the invention, 3) The state of the prior art, 4) The level of one of ordinary skill, 5) The level of predictability in the art, 6) The amount of direction provided by the inventor, 7) The existence of working examples, 8) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

While all the above factors were considered, some of the specific considerations are described below:

It is not seen where in the specification enablement is present for making compounds other than  $X = O$ . Thus terms 'thiourea' and N-oxide, solvates, prodrug are present in the specification, no enabling disclosure or working examples are found in the specification for such compounds. It is not seen where the specification discloses compounds wherein  $X = N$ ,  $X = S$  or N-oxides, solvates or prodrugs

Reference to biological activity, that is, potential utility of the compounds of the invention, is found on pages 221-223 of the specification. Apart from the academic teachings of assay procedures and formulation protocols, the disclosure in the specification with respect to biological activity is limited to the  $IC_{50}$  (950 nm) of one compound (see page 222, first paragraph). No pharmacophoric requirements relating to antagonistic activity at the EDG-5 receptor is discussed or suggested in the specification. Size, molecular weight, polarity(charge), lipophilicity etc., play major roles in the viability of any compound as a drug; in addition, given the limited information relating to structural requirement for activity at the EDG-5

receptor, one skilled in the art would be faced with undue experiment to determine what specific embodiment of the million possibilities of formula (I) would offer desirable biological profile.

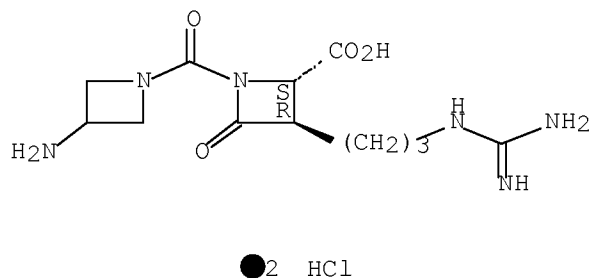
***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 9 and dependent claims rejected under 35 U.S.C. 102(b) as being anticipated by Bisacchi et al. (WO 9967215)



R3 and R4 taken together a heterocyclic (azetidine-2-one) ring which may have further substituents.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

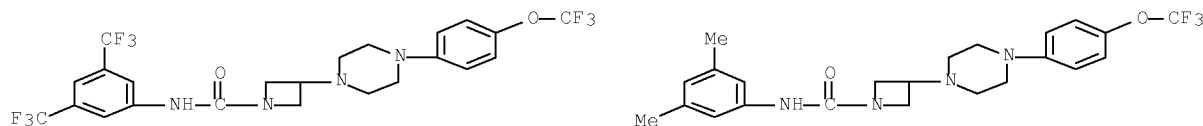
A person shall be entitled to a patent unless –

Art Unit: 1625

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

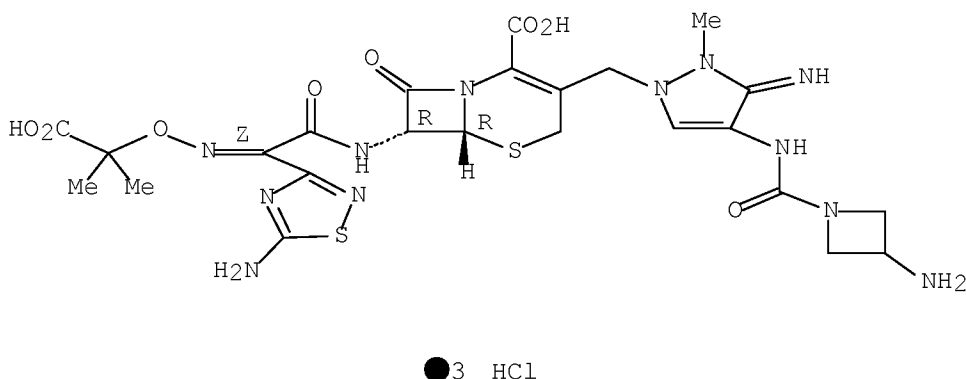
Claims 1-7 and 9 rejected under 35 U.S.C. 102(e) as being anticipated by Nakade et al. (WO 2004002531, international filing date 06/25/2003).

Nakade et al. teach,



Claims 1-7 and 9 rejected under 35 U.S.C. 102(e) as being anticipated by Ohki et al. (WO 2004039814, international filing date 10/27/2003).

Ohki et al. teach,



R1 and R2 are hydrogen and R3 and R4 form a substituted heterocyclic ring.

Specific compounds Claim 8 is free of prior art, would be allowable if the claim is rewritten independent of claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIZAL S. CHANDRAKUMAR whose telephone number is (571)272-6202. The examiner can normally be reached on 8.30 AM - 4.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571 0272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nizal S. Chandrakumar

/D. Margaret Seaman/

Primary Examiner, Art Unit 1625